

(Following Paper ID and Roll No. to be filled in your Answer Book)

PAPER ID : 1602

Roll No.

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B. Tech.

(SEM. II) THEORY EXAMINATION 2010-11

COMPUTER CONCEPTS & PROGRAMMING IN C

Time : 3 Hours

Total Marks : 100

- Note :—** (1) This question paper consists of **THREE** sections. Section-A contains objective type questions and carries **20** marks. Section-B consists of short answer type questions which are of **30** marks and Section-C contains long answer type questions of total of **50** marks.
- (2) Your answers for Sections B and C should be precise and to the point.
- (3) Answer to the questions each section must be done at **one** place in your answer book.
- (4) You are required to attempt all the questions.

SECTION—A

1. There are a total of 10 multiple choice questions. Only one of the answers out of given four choices is correct. Write the correct answer :— (10×1=10)
- (i) The example of system software is :
- (a) UNIX
- (b) Compiler

- (c) MS-DOS
- (d) All of the above.
- (ii) Devices used for producing hard copy is :
- (a) Printers only
 - (b) Plotters only
 - (c) Scanners only
 - (d) Printer and Plotters both.
- (iii) Which of the following is an example of scripting language :
- (a) LISP
 - (b) C++
 - (c) PERL
 - (d) COBOL
- (iv) How many bytes are occupied by the string literal constant "abc" in memory :
- (a) 1 byte
 - (b) 3 bytes
 - (c) 4 bytes
 - (d) 2 bytes.
- (v) Which of the C construct is used to terminate a loop in the middle :
- (a) return statement
 - (b) continue statement
 - (c) break statement
 - (d) All of the above.

- (vi) Minimum number of times a do while loop will execute :
- (a) 2 times
 - (b) 1 time
 - (c) 0 time
 - (d) None of the above.
- (vii) By default, array index in C language starts from :
- (a) 2
 - (b) 1
 - (c) 0
 - (d) - 1
- (viii) The complement of the relational operator $(a == b)$ is :
- (a) $(a < b)$
 - (b) $(a > b)$
 - (c) $(a != b)$
 - (d) All of the above.
- (ix) By default the return type of a function is :
- (a) char
 - (b) float
 - (c) int
 - (d) void.
- (x) Which of the following is an example of secondary memory :
- (a) RAM

- (b) ROM
 - (c) Cache Memory
 - (d) None of the above.
2. State whether the following statements are TRUE or FALSE : (5×1=5)
- (i) Floppy disk is an example of main memory.
 - (ii) The array is used to store the elements of similar data type.
 - (iii) An entry controlled loop is executed at least once.
 - (iv) Type of a function depends upon its arguments type.
 - (v) ALU is integral component of CPU.
3. Fill in the blanks : (5×1=5)
- (i) The scanner is an example of device.
 - (ii) PROM is an example of memory.
 - (iii) An integer pointer variable is declared as
 - (iv) The << is an example of operator.
 - (v) The octal equivalent of $(100)_{10}$ is

SECTION—B

4. There are seven questions in this section. Attempt any five questions : (6×5=30)
- (a) What are the different types of operators in C language ? Explain with example. Discuss the significance of each.

- (b) Write an algorithm to print all the even numbers and odd numbers between any given two integers N1 and N2 ($N1 < N2$) and also print the sum of all even numbers and odd numbers.
- (c) Write short note on the following with example in reference to C language :
 - (i) Data types
 - (ii) Entry and exit control loops,
 - (iii) Switch statement and if statement.
- (d) (i) Write an algorithm to print the first 100 Fibonacci numbers and their sum.
- (ii) Discuss various storage classes in C with suitable example. Also give their significance.
- (e) Draw the flow chart and write a function in C to calculate the sum S of all the following series :

$$S = 1^1 + 2^2 + 3^3 + 4^4 + \dots + N^N$$

(N is a positive integer)
- (f) Discuss the major components of a digital computer with suitable block diagram. Also discuss the functions of these components.
- (g) Give the flow chart and algorithm to calculate the number of words in a given sentence.

5. This section contains **seven** parts. Attempt any **five** parts :
(10×5=50)

2.

- (a) Write a program in C to store the floating point numbers in two matrixes A and B of size 4×4 each. Further the program should compute the summation and multiplication of the two matrixes and store the summation and multiplication in matrix C and D respectively.

- (b) What do you mean by sorting ? Write a program in C to sort the given n positive integers. Also give the flow chart for the same.

3.

- (c) (i) Write a program in C that reads the two strings of length at least 7, then concatenate these strings.

- (ii) Write a program in C that takes a year from twentieth century as an input and then tells whether it is a leap year or not ?

- (d) (i) What do mean by pointers ? How pointer variables are initialized ? Write a program in C to swap the values of any two integer variables using pointers.

- (ii) Write a function in C that finds the reverse of a given integer number.

4.

- (e) Create the database of students in C having the following attributes : Roll_no, Stud_name, Stud_address, Stud_city, Stud_PINCode, Stud_sem, Rank, and Branch. Also write the program in C to enter the data for 500 students in any order and then display the list of students for a given branch and semester on display.

- (f) (i) What do you mean by parameter passing ? Discuss various types of parameter passing mechanism in C with example.

- (ii) What do you mean by recursion ? Write a recursive function to calculate the factorial of a given integer.

- (g) (i) Write a program that counts the total number of vowels in a given sentence.

- (ii) Write a program in C to copy the text of one file to another.